Exploring Creative Process Via Improvisation and the Design Method RePlay

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ABSTRACT

RePlay is an exploratory method being developed by the author as a tool to observe creativity in action and how improvisation similar to brainstorming is a useful embodied technique in collaborative and an often inter-disciplinary design process. This paper reflects on a pilot study conducted with a group of improvisation actors to experiment with the method and its development. The contribution of the paper is to explore the value of RePlay as an embodied approach for observing as well as enhancing creativity both as method for observation and developing it as a creative tool. The method involves the use of body storming in the early stages of co-creation on behalf of participants as well as reflection on the activity afterwards. This exploratory method builds upon Dix *et al.* [7, 21] BadIdeas as well as improvisation techniques and the use of props in collaborative brainstorming. What follows, is an overview of design methods as well as a summary of some of the work that has been done in the area of Human- Computer Interaction and other disciplines regarding the use of improvisation. This paper also includes a summary of the results of a pilot study utilizing RePlay as well and proposed future work and directions for research.

KEYWORDS

creativity, improvisation, reflection, design research, design methods, contextual information

INTRODUCTION

This paper will report on the results of a pilot study conducted to develop and explore the use of improvisation as part of the creative process. The paper will offer an initial short explanation regarding design methods and their role in the design process. It will recommend the importance of an embodied approach and the benefits that improvisation offers. In order to provide a context for the use of improvisation a short history regarding improvisation is provided. In the following sections a brief description of the BadIdeas method [7, 21] as well as introducing improvised bad ideas will be described.

The goal of this study is to begin to observe improvised bad ideas as part of developing a technique called RePlay whereby participants in the future will apply improvisation to an applied design problem and later reflect upon the process. Results from an initial pilot study are discussed as well as possible future directions for exploring and developing the RePlay method. In the future RePlay could be useful for creatives, clients, stakeholders, designers, technicians, engineers and scientists wanting to explore design methods that work towards innovative leaps. The goals of this pilot study were essentially two-fold. Firstly to observe group creativity using an ethnographic approach, and creativity as it unfolds in action. Main areas of interest include observing the creative process in groups and exploring the benefits of utilizing body storming as a part of the creative process. Body storming refers to a type of embodied brainstorming process involving different contexts [13]. Since this work explores group creativity, research will also be concerned with social interaction of groups in creative processes especially groups coming perhaps from various socio-cultural and interdisciplinary backgrounds. The second goal is to further hybridize and expand upon the Bad Idea Dix el al. [7] method using improvisation to iteratively develop a framework which I shall call RePlay. RePlay is a method that will explore a set of strategies modeled on improvisation yet tailored for the design process perhaps to be used at different stages. The name alludes to the fact that players will be put into a context whereby they will playfully work through a brainstorming process and then afterwards playback the session and reflect upon which strategies were and were not working and which concepts might need further development as part of their brainstorming process. Due to the characteristics of improvisation such as working with contextual information, physicality, spontaneous thinking and building upon tacit knowledge of individual players it also provides an embodied approach to traditional brainstorming [11] strategies. Recently PhD research conducted by Silva evaluated and improved upon the BadIdeas method so that it was able to support creative process in the field of HCI (Human- Computer Interaction) [21]. Silva explored in her thesis role play as a presentation

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tool for BadIdeas however does not involve improvisation as part of the initial brainstorming process. Overall Silva's results suggest that the BadIdea method is a valid strategy to promote creativity and she furthermore describes methods for evaluating its effectiveness. However, some of the limitations of BadIdeas described by Silva is production blocking, evaluation apprehension, and free-riding [21]. By researching some of the techniques of improvisation and some of these limitations of BadIdeas these concerns could be addressed further.

Improvisation engages a group in a type of activity which forces one to break out patterns of thinking and perhaps becoming fixated at the very early stages in creative process. RePlay will be a method that is flexible and open enough to assist design teams with the development process as well as help them to collect information both internal in relation to their existing knowledge and externally in terms of the context or environment for which they are designing. This method would be used for situations in which a service is being considered, a product is being developed or perhaps an interface is being developed.

In the area of design thinking there are a number of methods for assisting design practice. Some examples of such strategies are user scenarios, personas, use cases and cultural probes [22]. All of which aimed at providing the designer or design team with richer contextual information meaning, cultural clues as well as information regarding the values and needs of the target group. Whilst user scenarios, personas and use cases are helpful they are based on the designers' interpretation of how their design might be used and as a result these internal perceptions can vary from an embodied collaborative approach. This is not to say that one approach is better than another however instead to understand what it is about this particular approach that is helpful and at what stages in designing is it most useful. Ideally designers should have a toolbox of methods that they can utilize at different stages of idea development. Consider the strategy of a cultural probe such as a diary, blog or camera that is used by target users to gather inspiration for design work [9]. This can prove problematic since the selection of information gathered by the probe can be based more on aesthetic evaluation of beauty and inspiration on behalf of the designer and therefore important information may be overlooked. *Gaver et al.* [10] later defend the use of cultural probes in another article, *'Cultural Probes and the Value of Uncertainty'* in that they take into account the subjectivity of the designer and that instead of creating an objective or a third person perspective by nature this subjective way of working induces a playful and exploratory approach.

While the use of cultural probes is helpful, tools that also explore various scenarios and possibility spaces in a group scenario are also valuable as they challenge the perceptual assumptions of the creative team and enhance communication and the creation of a shared language around the object/service that is being designed. Sawyer a professor of psychology and education has researched performance and the applicability of improvisation in group collaboration and creativity [16]. Some of the benefits that Sawyer observed were deep listening and the experience of ideas building upon each other and thus building a kind of group flow. However this is not to say that collaborative work will always work this way. Sawyer has observed that if a group is not familiar enough with one another and share a common goal this will influence the outcome negatively. He has also observed that diversity not only in background but also expertise in groups tends to produce better results and that 'group genius' [16] works better when exploring more complex problems. Therefore group collaboration is most effective when diversity, shared knowledge, well defined goals, autonomy, fairness, close listening and group participation are all present. IDEO is an example of a design company that has invested a great deal into facilitating group brainstorming and has achieved positive outcomes. Later in this paper research conducted by Simsarian [20] at IDEO that used improvisation as tool for brainstorming will be discussed.

According to Sawyer [16] if certain variables are addressed then it seems that collective brainstorming is useful to the creation of innovative ideas. Yet it still remains to be understood how it is that improvisation assists the creative process. Upon considering Wallas' [24] model of creativity Simonton [19] has suggested that the more novel an idea is the longer that the incubation phase may take. The incubation phase is one of the five stages that Wallas describes as part of his model for mapping creativity. The other stages are described as preparation, incubation, intimation, illumination and verification. Given that in an industrial setting such as IDEO one may not have the freedom to have a long phase of incubation in order for "innovative" solutions to occur, methods and strategies for economizing time, as well as limiting the frustration of getting fixated would be most welcome. Besides these more practical reasons, a novice designer might also welcome tools which enable understanding of subjective processes better as well, as strategies regarding how to avoid the pitfalls of becoming fixated along the way and hence not being able to come up with an innovation solution. Fixation as defined by Duncker is a mental block which prevents one form perceiving a concept in a new way in order to solve a challenge and as a result the concept may be interpreted only in a particular way rather than exploring more experimental solutions [8]. Perhaps some aspects of improvisation may assist with this exploration of innovative solutions as a type of reflection in action. Schon describes this kind of activity as a kind of dialectical talk back between what is being perceived by the mind to what is then made explicit [18].

Historically, before Improvisation became popular in America as a theatrical technique it was developed in Europe. The three most influential figures in its development are Konstantin Stanislavsky in Russia, J.L

Moreno in Austria and Jaques Copeau in France whom all developed their techniques in tandem [17].

Stanislavsky who was influenced by Freud's theories of the unconscious wanted actors to focus on developing the feeling and emotional aspects of a character. He wanted the acting to appear more natural and therefore introduced a technique called "psychological realism". Lee Strasberg who was exposed to Stanislavsky's ideas as part of the *American Laboratory of Theatre* in New York later went on to form *Group Theatre* and the *Actor's Studio* in the United States. In the 1950's the technique was widely known and described as "the method" [17].

Moreno's techniques were described as 'psychodrama' and 'sociodrama' yet before he was known for this type of work he is remembered for his theatre group "Die Stegreiftheater" which means the theater of Spontaneity. An important aspect of Moreno's technique was his desire to involve the audience. He also developed the concept which is now called the "ask for" whereby the audience is prompted to provide the actors with suggestions which would later be acted out. He eventually immigrated to the United States and began directing the Impromtu school in Brooklyn in 1929 [17].

Jaques Copeau in 1916 experimented with improvisation by incorporating 'comedia dell'arte' into French theater. Comedia dell Arte was founded in Italy and is characterized by plot summaries and stock characters. While the scenes are limited it allowed the actors to focus on performance and character development. His contribution was his innovative approach to training of actors by incorporating improvisation into the rehearsal process. This influence also reached modern theater groups in England and the United States. Copeau was inspired by watching children play and how their games were improvisational in nature [17].

Although there is well documented research done regarding the use of improvisation by Brandt *et al.* [3], Sawyer [16, 17], Simsarian [20], Diaz *et al.* [6], Salvador *et. al* [14, 15] and others there is still a great deal of potential for developing this technique in design as well as the different types of applications it may have and at which stages it could be useful. As a research tool it presents a great deal of potential in terms of having a first person perspective of creativity in action in contrast with analyzing representations of creative phases such as sketches, artifacts or interviews.

In the next sections the method Replay proposed in this paper is explained in more detail, as a way to observe creativity in design as well as some of the background research done in this field. RePlay uses improvisation techniques as a way to conduct body storming. Afterwards, participants are asked to reflect upon what they have improvised. The focus of the pilot study was to reflect upon the methodology and gather a first person perspective of creativity and what works and what does not. RePlay in the future will be used to observe how improvisation influences creativity as well as how social interaction informs ideation. As well research will explore how a strategy such as RePlay assists reflection and gathering of contextual information and the benefits of this.

IMPROVISATION AND DESIGN PROCESS

Before considering the role of improvisation in design it is important to explore the value that the body brings to designing. This can be seen in the research done by Loke and how she accounts for bodily information further by exploring the relationship of body to design as an important part of the practice. Her rational being that, design which does not account for the relationship of the body in the design process can become merely speculative and ungrounded in lived experiences [12]. Loke accounts for the role of the body and movement by analyzing video recordings that provide feedback regarding the design space. One study of Loke's explored the use of this strategy with the design of a video game called ETOY in which body movements were codified.

Locke analyzes the body in relation to the product's use. However if improvisation was also used in the early stages of designing, pitfalls or nuances could have been avoided or flagged, before even making the prototype. Similarly another example is a project focused on the importance of contextual information by acting out scenarios in different environments. Using 'place storming' participants construct scenarios in different locations based on specific missions while using a prop [1]. Place storming is said to be building upon 'informance' [4] a process used by IDEO as well as 'focus troupe' methods [14, 15]. Focus troupe applies drama in a participatory design approach as a well to collect contextual information regarding a target group.

IDEO as mentioned earlier in this paper applies performance techniques such as role play in the early stages as well as later on in their design phases [14]. Role play unlike Improvisation involves the use of a constructed scene with or without props where by individuals are forced to use their whole bodies as part of the design process. Some of the benefits described by Simsarian [20] are perceptions of a shared experience that is grounded within a particular situation. This builds stronger communication as well as a rapid understanding amongst the team members. IDEO breaks down their workflow into several phases Understand, Observe, Visualize, Evaluate, Refine and Implement with improvisation being employed throughout. Sometimes it is used as brainstorming method and sometimes in order to build real time use cases or work out particular nuances. Sometimes this is called an 'informance' [4, 20] when it is communicating the design to an audience. The scenarios are also recorded which according to Simsarian tends to heighten the result of the scene. For IDEO it seems that without being explicit about it role play is being used to augment their creative phases by building in an opportunity to acknowledge contextual

information as well as reflect on the outcomes of their designs.

REPLAY DESCRIPTION

So far a context for the BadIdeas method and improvisation has been provided. I have also described the benefits of combining these two techniques and the development of a technique called RePlay. The advantage of the RePlay method is that it would build on characteristics from both of these techniques as well have traits which are concerned more specifically with giving a framework for solving applied design problems. Some concerns that I am interested in are group collaboration, co-creation, reflection, environment embodiment, and social interaction. The rationale behind doing this pilot study was to observe creativity in action as well as test and experiment with developing the RePlay method.

The idea of creative processes as being a kind of lonely or mysterious process or a process dependant on devine intervention [22] is something which this research questions. According to Sawyer [16] the creative process is a much richer interaction between an individual and perhaps other individuals and their environment. The extent to which one is conscious of this exchange is however another concern. Most often designers find themselves working in interdisciplinary teams of designers, technologists, engineers and business specialists in which the emphasis is upon collaboration and co-creation with traditional forms of brainstorming as a staple part the creative process.

A drawback to brainstorming is that it is very focused on a team communicating through keywords and key concepts. Words are often used that may be rich with meaning and context as well as the tacit knowledge of that individual. Also the interpretation of those key words or concepts by others will be open to the same kinds of interpretation. The focus of brainstorming however is not upon communication of these ideas as its success is usually measured by the number of ideas generated, a common measure of creativity. However this measure suggests little variance in terms of the type of ideas being generated. In contrast Boden [2] has presented notions of variance in creativity for example, novelty which focuses on whether the idea is P-creative or H- creative. P-creative is new to that individual or H- creative in terms of having never occurred before historically.

With regards to RePlay, participants will first warm up using the BadIdeas technique. In doing this, the team will be more open to the possibility for interpretation and creativity as a problem solving strategy rather than simply becoming attached to he value or investment to be had regarding an idea. By then acting out the bad idea the group would then explore the potentials of improvisation as a brainstorming tool. The hope would be that later with this knowledge they can utilize improvisation as a kind of structured embodied brainstorming that would then be focused more on social interaction, use cases and developing a shared understanding of what is being designed perhaps even involving participants as a kind of participatory design process. Later by engaging in participants in a reflective process they can raise questions or concerns regarding interactions which occurred as well as points of departure for further conceptual development.

Similar to the method utilized by IDEO [24] RePlay utilizes improvisation techniques in order to conduct body storming [13] as a part of creative process. However, at this stage the focus in the pilot study was to develop the method iteratively. Research will also make particular note of how improvisation influences creativity and focus on strategies such as reflection and contextual information as well observing how social interaction informs the ideation process. In order to assist reflection as part of the method as well as to collect research data the session will also be video recorded. This recording might also be used by the team to reflect upon the session as well as qualitative data for later studying the creative process.

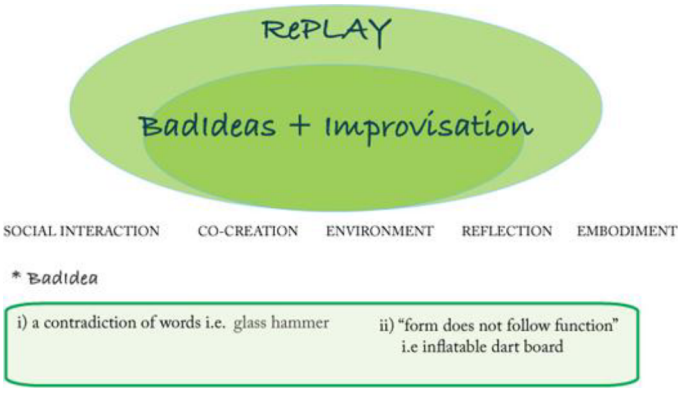


Fig.1 RePlay Overview

In order to describe the RePlay method as clearly as possible the use of a model has been employed that breaks down the method into a few simple steps. In the first step teams of three or four come up with a bad idea based on Dix *et al.* BadIdeas [7]. The BadIdeas method is a technique that uses a 'bad idea' approach to inspire creativity and teach critical thinking in the design process. One of the characteristics of BadIdeas is that it encourages divergent thinking. A bad idea might consist of using opposing concepts such as a glass hammer or considering the use of a useless object such as an inflatable dartboard. In the second step participants are led through an exercise, reflecting upon their ideas in a more convergent or analytical way and verbalizing the properties of what makes the idea a bad idea. Dix *et al.* [7] suggest one of the ways the method could be structured is through the use of prompts one of which being imagining a use case where by a bad idea might be useful. This step is extremely

important as when it was left out of the pilot study the group tended to get lost in the exercise however, this will be discussed in the results section of this paper. The third step involves the choice of a prop which functions as an anchor in order to ground the activity and give structure to the approach.

The prop will work as a constraint in order to guide the improvisation towards exploring the properties of a bad idea. Props have a history of use in design research as a way to collect feedback and other pertinent information regarding use. Caroll and Tobin [5] have used props and body storming [13] as part of their research on design innovation through the use of technology. They refer to this process as 'envisionment'. However this process is focused on a user centered design approach directed towards the interaction of users and technology. As a result the props used as part of the creative process in this case have been endowed with technological functionalities such as GPS, video and audio.

The criteria used to select props for the pilot study was influenced by their universal design and flexibility. It was important that these props be tactile and allow for different structural shapes easily and quickly. This would be useful in terms of fast proto-typing due to time constraints. It is also significant that the props create experiential associations to 'play' since I would like the creative team to experience a relaxed and open atmosphere. Keeping in mind the spirit of openness in this activity, it is also important to consider materials that have little or no cultural references since this could imply a strong symbolic language in terms of use. The first material considered as a possible direction for a prop is felt. Felt is easy to use and flexible for creating mock- ups due to its softness and tactile qualities. The second material is a toy called a Furb[1] that is basically a squishy ball that has rubber spikes on it. The rationale behind this was to inspire 'play' among the participants in a subtle and universal way by using an object that has little if no cultural associations besides an experiential association with childhood. The third object is Lego quite the opposite in terms of its cultural and social references since it has a strong symbolic language in terms of its use. However it also triggers memories of childhood and openness to creative process. Another benefit of Lego[2] is its ability to be structural and an adaptable tool for quick prototyping. The fourth material is Play- doh[3] a clay-like squishy material that can be modelled quickly and again very tactile however can get messy and is not such an easy material to get people to use due to its stickiness and odour. At this stage no decision has been made regarding the material to be used as prop as I would first like to play with different materials in different scenarios and see whether using a prop would be beneficial.

The fourth step combines the method with that of body storming via improvisation to observe whether doing this type of exercise at this early stage influences creativity and creates new directions or requirements. Finally step five in the process allows for reflection and discussion regarding the process to discover what was working, not working and what had been left out in the scenes. It's also an opportunity to reflect on the method and possible future directions for developing concepts that came out of the process. Below is an initial sketch of how the RePlay process currently works. In order to assist reflection and as part of the method the session will also be video recorded. This recording might be used by the team to reflect upon the session. It is also useful as qualitative data to study the creative process.

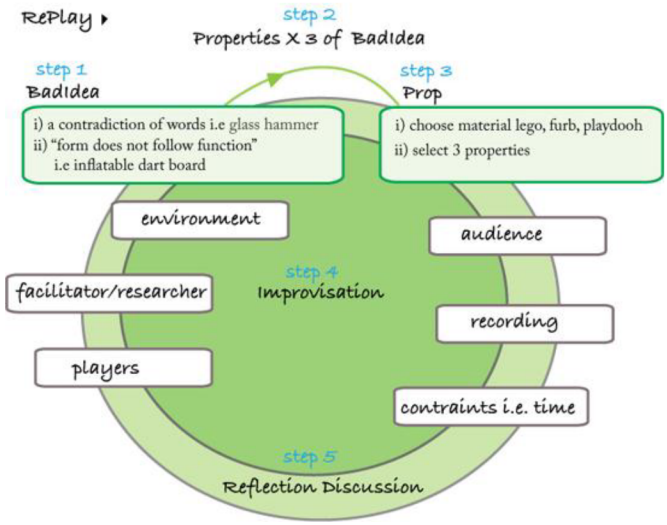


Fig 2. RePlay Steps

PILOT STUDY

The pilot study was conducted at a local community center using RePlay and involving a group of local Improvisation actors. The actors are a troupe that has been working together on a weekly basis for a number of months. Normally there is a consistent team of players which work on long form improvisations with a facilitator who is an expert improviser. The team meets on a weekly basis in order to develop their technique as well as for pure enjoyment. Long form improvisation is a style that is focused on building a story and usually includes a great deal of dialogue. The pilot study involved 2 teams each of which having about 3 members. The teams were first asked to brainstorm a scene based upon a bad idea that they had come up with. In their groups they came up with qualities

[1] For more product information, see http://www.tobar.co.uk/

[2] For more product information, see http://www.lego.com/

[3] For more product information, see http://www.toysrus.com/product/index.jsp?productId=2326674

of the bad idea and how it could function as a good idea. The team initially had a short group brainstorm to come up with their bad idea. In the first set of scenes they were encouraged to use props such as lego, and a toy called a furb as described earlier in this paper. This later was not a requirement. The facilitators being the author and another facilitator (experienced improviser) then called out the words expand and advance. Expand was used more to expand upon the context or situation and the environment and advance was to encourage the players to advance the story. After performing the scenes the actors were then asked to reflect upon the method and discuss how it might be improved in the future. The task was to test out the BadIdea method as an improvised scene and to observe the process. The goal from this pilot study was to take the feedback from the actors and adapt this using the BadIdeas method as a starting point. The feedback given from the actors would then be adapted to create a stronger framework for defining the RePlay method that could later be used in an applied design context. In the future RePlay will use the BadIdeas method as a warm up exercise as well as work with an applied design problem in an industrial context. During the design session the bad ideas that we used were: underwater karaoke, florescent camouflage, a black light bulb, and an icicle fireplace.

DISCUSSION

The participants and I observed that the BadIdea method offered a good starting point to explore improvisation and to develop RePlay. One of the key observations however was that the props Lego and a toy called a Furb did not support the process as much as would have been initially expected. This could be due to the fact that the actors did not require a prop as an anchor or that being experienced improvisers they did not need to use a prop.

In the first session their were players improvising the BadIdea 'under water karaoke' after having chosen Lego as prop. In this scene the facilitator was calling out expand to get the actors to expand on their environment and advance to prompt them to advance the story. In the reflection part of the exercise it was discussed whether the use of freeze frames would be helpful. The other facilitator then mentioned that the actors tended to ignore prompts and were more interested in improvising rather then following cues. This was mentioned as being a possible detriment to the bad idea's conceptual development being that actors were more interested in story telling.

Top right is a photo from the first session whereby the prop was more of a hindrance then a helpful tool. The actors seem to struggle throughout the scene to involve the prop. Later upon reflection of the scene they discussed the context of a swimming pool vs. the ocean and how this might affect its use. The improvisers found it difficult to get past superficial contradictions inherent to the bad idea due to their desire for comedic affect. They found it useful as a part of reflection to discuss where they could have involved other members in the scene.



Fig 3. RePlay scene 1 using a prop

In the second scene the actors were trying to convince an audience regarding their product. Once again they struggled with the prop and focused on discussing the materiality of their prop instead of what the prop was meant to represent, character development as well as story development seemed to be more of interest than developing a context for the bad idea. In the reflection part of the exercise participants gave feedback that they were distracted by the advance and expand prompts and not really finding them helpful. They also mentioned that they struggled to make their bad idea believable. They mentioned that they did not come up with scenarios or contexts as part of their initial group discussion and that perhaps this step would have helped with doing the exercise. They explained that this choice would have gone against the idea of just jumping into a scene without any previous knowledge as done in traditional improvisation.

The second set of sessions the players not only discussed properties they also discussed contexts such as location and time of day for their bad ideas. The third scene was improvising the black light bulb and worked much better when they tried to make a commercial where they just sold ideas which they had brainstormed beforehand as well as uses which were improvised on the spot. Uses were numerous including:

1) A mother who needs to get her child to sleep could use the black light bulb in order to trick the child that it was indeed time to sleep even during the day.

2) An inexpensive substitute to painting white walls.

3) Could be used by gothic music lovers or a person who wants to mourn the passing of loved in order to create atmosphere.

In the reflection part of the exercise the players expressed that when they were given the specific guidance of selling the idea this really helped. They also found a bit of pre-planning of the scene helpful. The final scene centered around a user not understanding the usefulness of

a product. The other two players were then in the position of explaining its usefulness. They explained the technology behind the bad idea of an icicle fireplace and how the melted water had a secondary use in that it could be channeled to one's back garden to give nourishment to plants. This hence turned their bad idea into a product for environmentally conscious consumers. They also expressed certain therapeutic aspects and its applicability to families and students alike. For example cooling down a crowded room. This lead to a conversation about convection and explaining how that process worked to the other players. One of the other team members then suggested its likeness to air conditioning which then led to a whole conversation about it being an alternative to air conditioning. It was then summarized as being an eco friendly product that feeds the garden. This selling feature helped put a better spin on using a fireplace. Finally one of the players endorsed the product based on its ability to be personalized with switching the moldings to themed molds such a Gucci fireplace. This idea then became a discussion about back lighting in fireplaces to an interest in lighting strategies. It was evident that they could keep going with this improvisation. In the reflection part of the exercise the players expressed that a bit of pre-planning really helped and that once they were not so focused on reality then this left room for many possibilities and locations. They then expressed that perhaps they could have worked with the expand prompts better than in the first scene. Even in he reflection part of the exercise they were still coming up with ideas. They had already prepared different contexts anticipating that the facilitator might call out advance expand. Given the nature of BadIdeas as being slightly unrealistic the improvisers found it initially difficult to go beyond superficial or comedic interpretations. However once they embraced the notion of possibilities and fantasy they were able to come up with interesting solutions that could have perhaps been further developed through sketching or storyboarding.

In the second part of the pilot study scenes worked better as was observed through the audience's approval as well as approval from the facilitators, team members and through the feedback given in the reflection phase. In part this was due to the fact that participants were given a chance to develop different contexts for how a product might be used as part of the initial brainstorming. This was the case in both the black light bulb scene as well as icicle fireplace. This also made the actors focus more on features, functionalities and use cases for the product rather than building up narratives and plot driven theatrical scenes. This may go against some of the tenants of improvisation being, that one should be able to immediately create scenarios without any pre-planning however in this case it was useful and this was confirmed by the feedback and results of the second round of scenes. Similar to the effect that props had upon RePlay, the use of improvisational techniques such as expand (in order to have the actors expand upon their environment) and advance (as way to advance the story) were not as effective as observed by the author an ended up being more of an interruption to the flow of the exercise. In the second half the actors seemed to adopt a model of explaining the product and its features to each other. This was after being told to think of it as sales commercial. A role play technique used to present ideas by Dix et al. [7] in earlier research. The second group also came up with several scenarios to show the opportunity for how this product might be useful. In the reflection part of RePlay participants commented that they were prepared to show several different use cases for their bad ideas. Overall it seemed that the creative potential was better facilitated when the groups had a chance to plan further as well as when they were given the prompt of selling the product. The exercise also seemed to function better when participants were given the opportunity to reflect immediately after the exercise while the process was still fresh in their minds. It is also perhaps important to mention the role of the facilitator in the process since prompts are sometimes needed as well as an understanding of some of the rules and techniques behind traditional improvisation.

FUTURE WORK

Another study this time with a design team in an industrial context will be conducted where by they first work with the BadIdeas method as a warm up exercise and later apply the same exercise to applied design problems not only bad ideas. It would also be valuable to explore design opportunities where by not only a product is the outcome but also perhaps a service or a more complex design concern for example urban planning concerns or challenges which would require design thinking. Regarding more traditional Improvisation techniques it would be interesting to explore the "Yes and" [17] technique which encourages participants to be open to each other's ideas. The technique involves beginning each sentence in the scene with a "Yes and" statement. Similar to brainstorming this strategy encourages the players to be open to each other by preventing the blocking and evaluation of ideas too early in the process and emphasizing openness and exploration. It would also be of interest to set up vignettes where by participants work through a set of quick sketches of scenes. For example in the first scene describing a context where by the product might be useful, then in second scene explaining the tool or experience to a new user and in the third scene perhaps acting out a commercial where by features and applications of the product/experience are sold to the audience.

CONCLUSION: FUTURE WORK

Despite The pilot study being an experimental and exploratory approach it offered insights into what was working with RePlay and what needs further exploration. A great deal of these insights stemming from feedback given by participants as well as observed insights on behalf of the author. It would be helpful to conduct another study with a

design team where by they first work with the BadIdeas methods as a kind of warm up exercise and later apply the same exercise to applied design problems not just bad ideas. In terms of creativity research more theoretical research and literature will be explored the role that social interaction plays in the whole process. The hope is that through conducting further studies the RePlay method will be developed iteratively and research insights regarding creativity will be deepened.

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